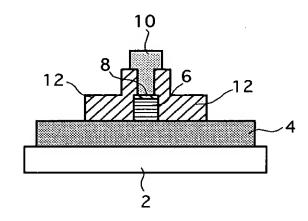
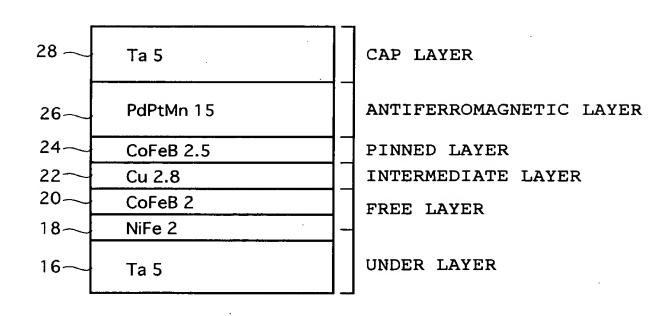
F I G. 1



F I G. 2

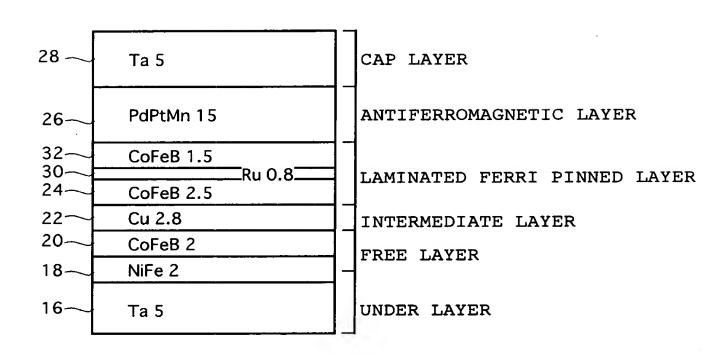


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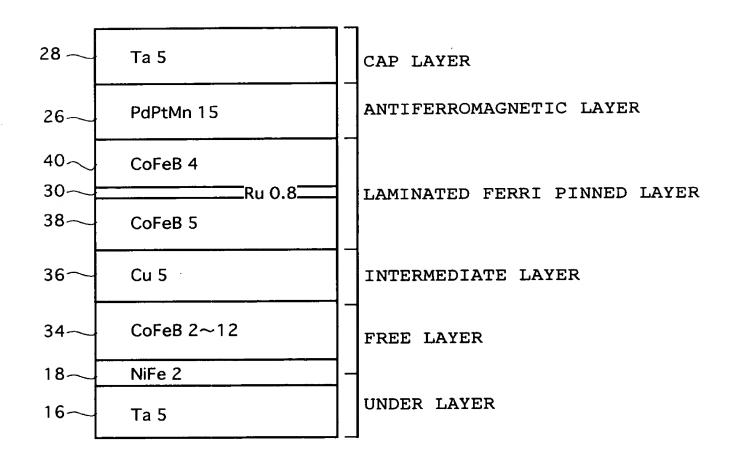
Greer, Burns & Crain, Ltd. Ref. No.3531.65364 Deet 2 of 35

(312) 360 0080

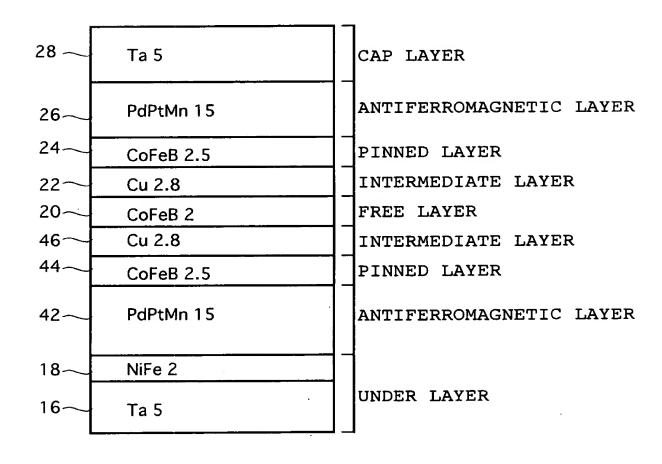
F I G. 3



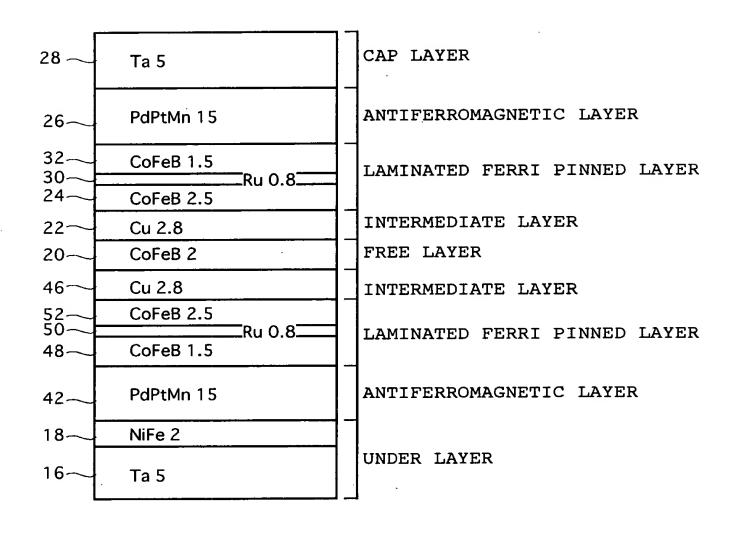
1 - 1



(312) 360 0080

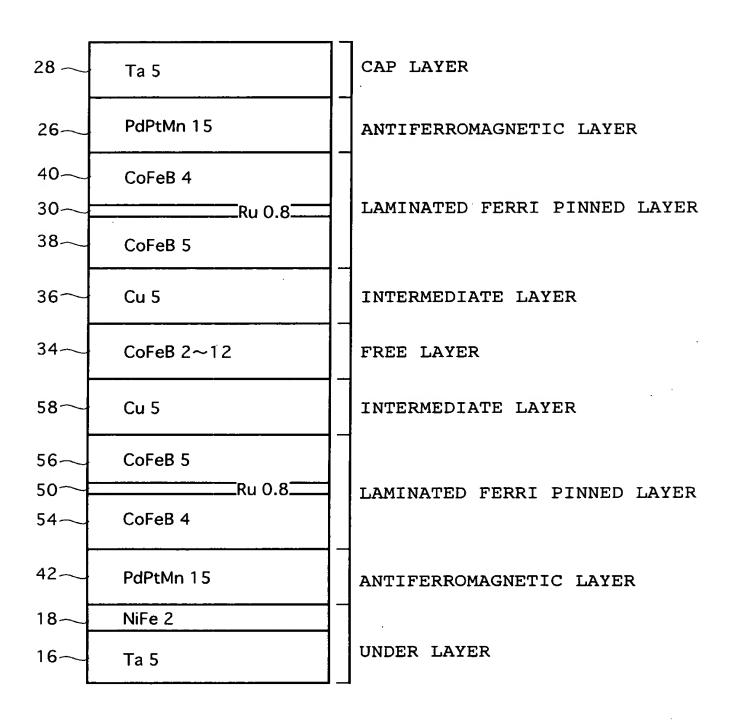


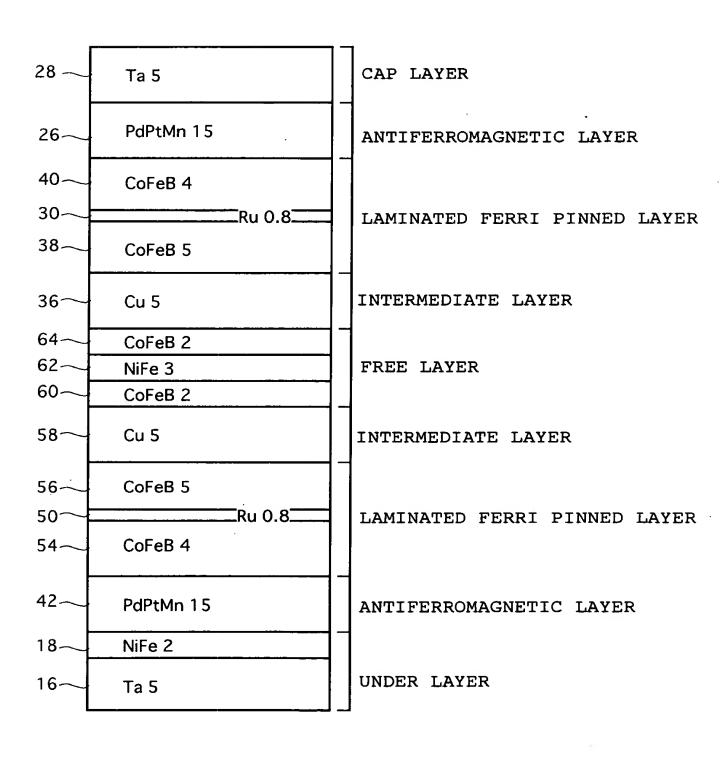
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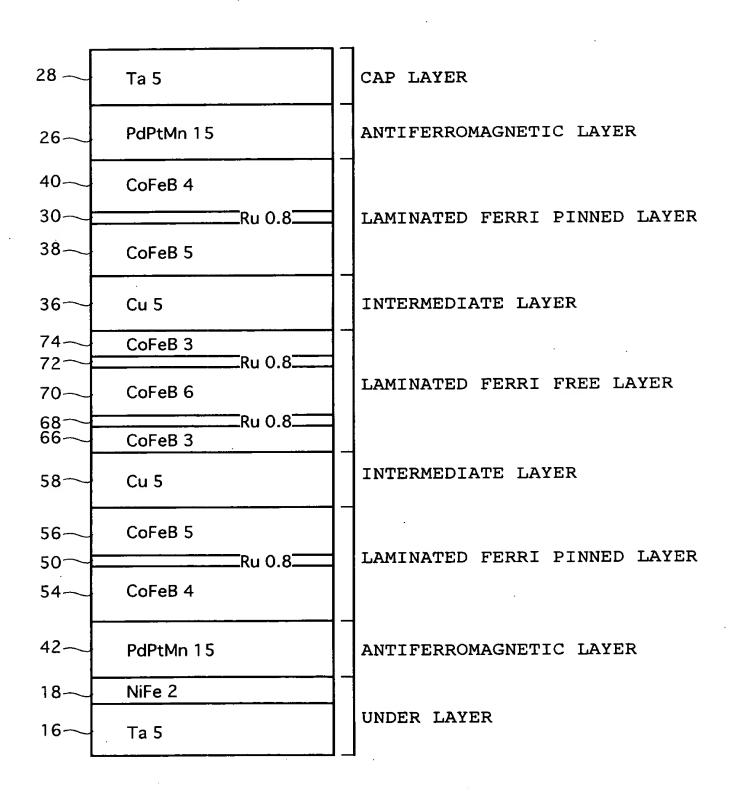
Sheet 6 of 35

(312) 360 0080





SPIN VALVE MAGNETORESISTIVE SENSOR. . . SEYAMA ET AL. Greer, Burns & Crain, Ltd. Ref. No.3531.65364 heet 8 of 35 (312) 360 0080



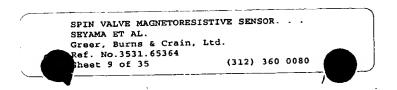
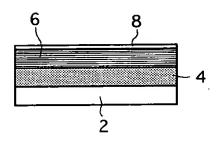


FIG. 10A FIG. 10A'



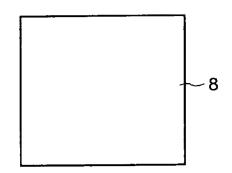
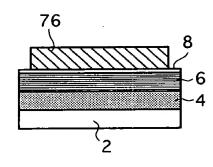


FIG. 10B

FIG. 10B'



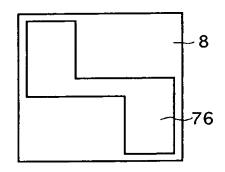
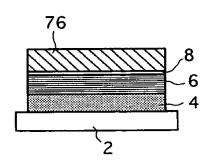
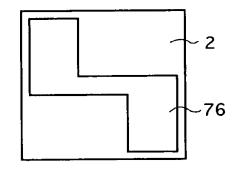


FIG. 10C

FIG. 10C'





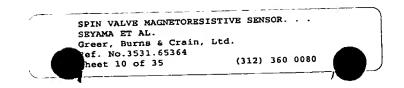
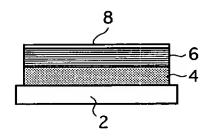
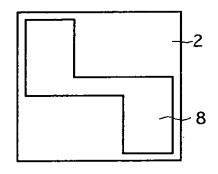


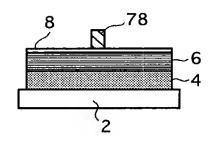
FIG. 10D FIG. 10D'





F.I.G. 10E

F I G. 10E'



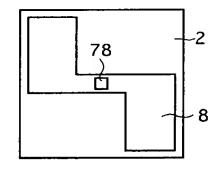
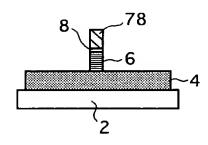
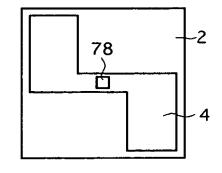


FIG. 10F FIG. 10F'





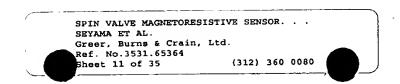
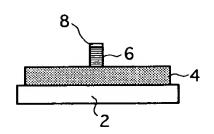


FIG. 10G FIG. 10G'



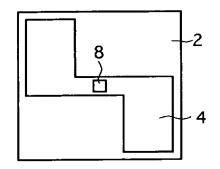
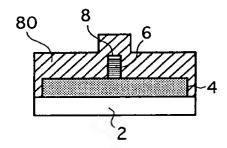
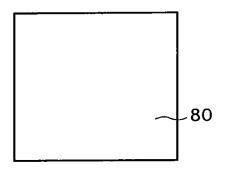


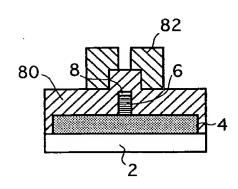
FIG. 10H FIG. 10H'

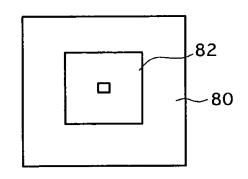


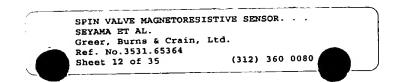


F I G. 10 I

FIG. 101'

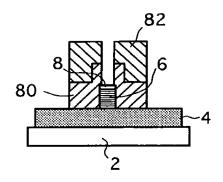






F I G. 10 J

FIG. 10J'



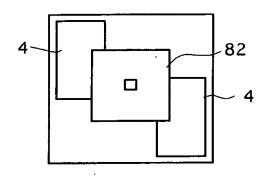
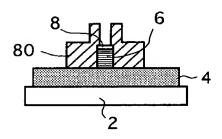


FIG. 10K

FIG. 10K'



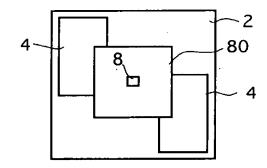
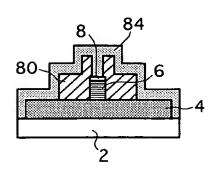
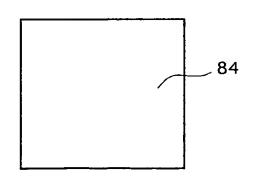


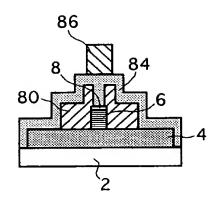
FIG. 10L FIG. 10L'

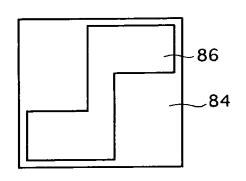




SPIN VALVE MAGNETORESISTIVE SENSOR. . . SEYAMA ET AL. Greer, Burns & Crain, Ltd. Ref. No.3531.65364 (312) 360 0080 Sheet 13 of 35

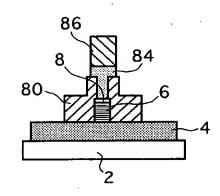
FIG. 10M FIG. 10M'





F I G. 10N

F I G. 10N'



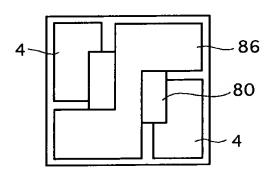
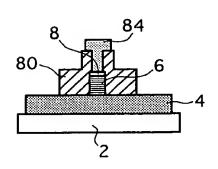
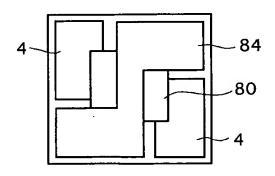


FIG. 10P

FIG. 10P'

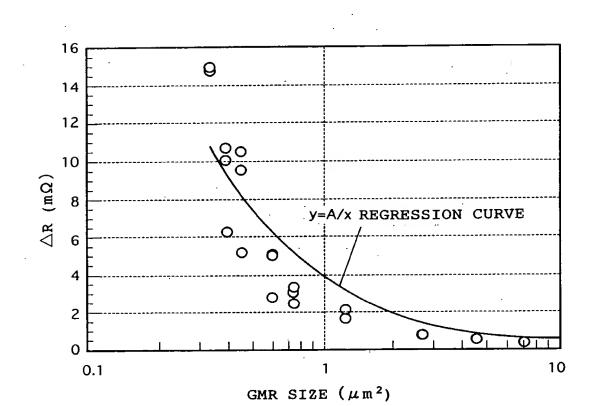




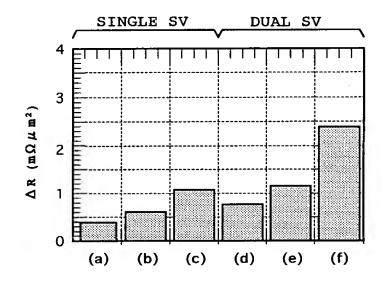
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SPIN VALVE MAGNETORESISTIVE SENSOR. . .

Greer, Burns & Crain, Ltd. Ref. No.3531.65364 Sheet 14 of 35



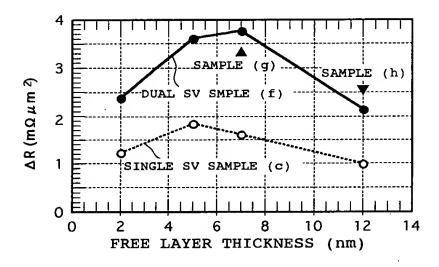
Ref. No.3531.65364 Sheet 15 of 35

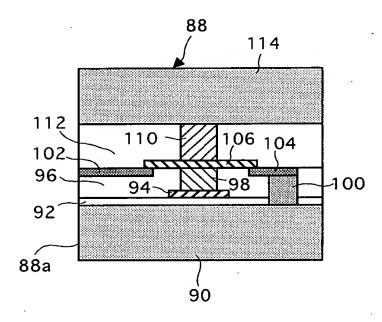


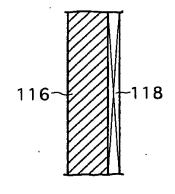
- (a): CIP OPTIMUM LAYER THICKNESS
- (b): LAMINATED FERRI
- (c): INCREASED THICKNESSES OF PINNED LAYER AND INTERMEDIATE LAYER
- (d): CIP OPTIMUM LAYER THICKNESS
- (e): LAMINATED FERRI
- (f): INCREASED THICKNESSES OF PINNED LAYER AND INTERMEDIATE LAYER

SPIN VALVE MAGNETORESISTIVE SENSOR. . . SEYAMA ET AL. Greer, Burns & Crain, Ltd. Ref. No.3531.65364

Sheet 16 of 35





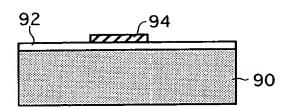


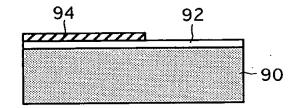
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SPIN VALVE MAGNETORESISTIVE SENSOR. . . SEYAMA ET AL.
Greer, Burns & Crain, Ltd.
Ref. No.3531.65364
Sheet 18 of 35 (312) 360 008

FIG. 15A

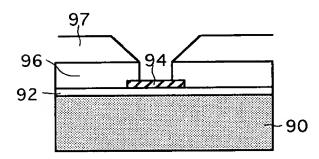
FIG. 15A'





F I G. 15B

FIG. 15B'



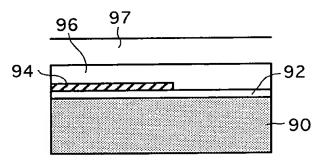
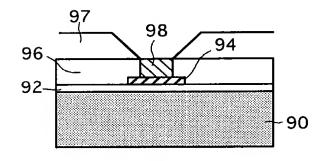


FIG. 15C

FIG. 15C'



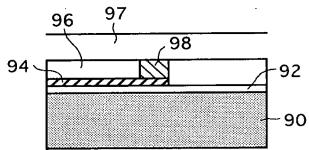
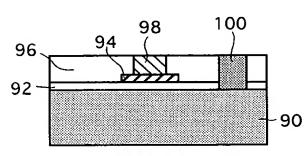
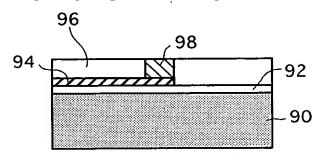


FIG. 15D

FIG. 15D'

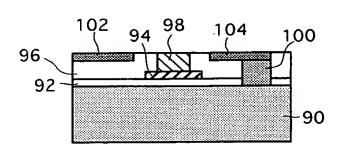


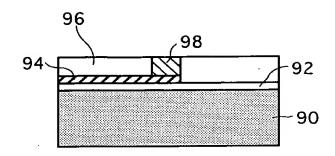


SPIN VALVE MAGNETORESISTIVE SENSOR. . . SEYAMA ET AL. Greer, Burns & Crain, Ltd. Ref. No.3531.65364
Sheet 19 of 35 (312) 360 008

FIG. 15E

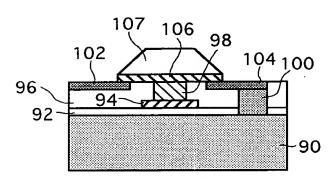
FIG. 15E'





F I G. 15 F

FIG. 15F'



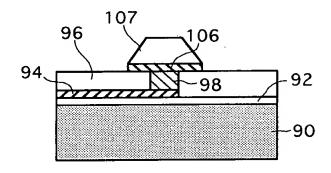
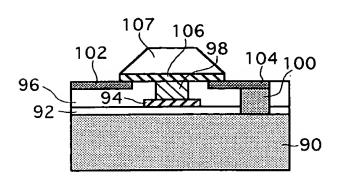
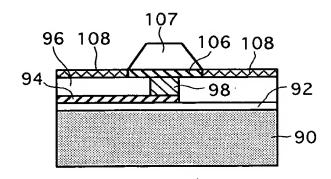


FIG. 15G

FIG. 15G'

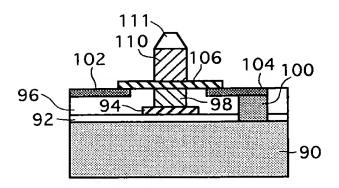


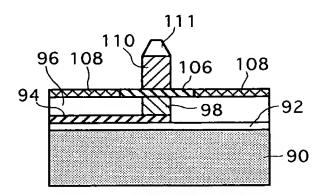


SPIN VALVE MAGNETORESISTIVE SENSOR. . . SEYAMA ET AL.
Greer, Burns & Crain, Ltd.
Ref. No.3531.65364
Sheet 20 of 35 (312) 360 00

FIG. 15H

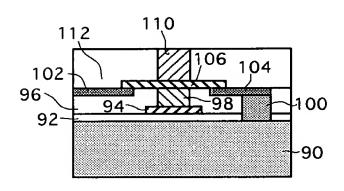
FIG. 15H'





F I G. 15 I

F I G. 15 I



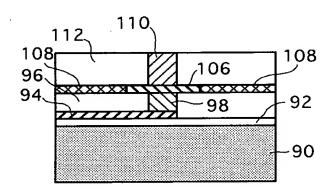
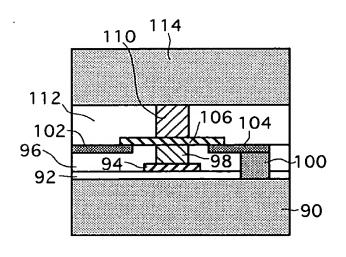
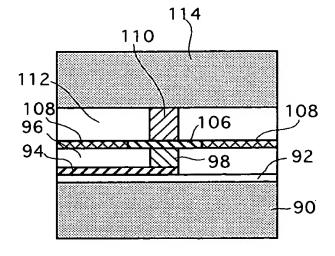


FIG. 15J

FIG. 15J'

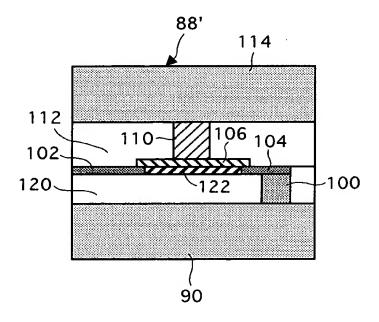




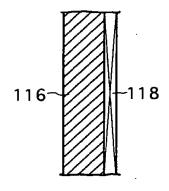
Greer, Burns & Crain, Ltd. Ref. No.3531.65364 Sheet 21 of 35

(312) 360 008





F I G. 16B

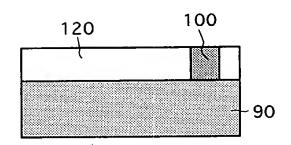


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SPIN VALVE MAGNETORESISTIVE SENSOR. . . SEYAMA ET AL.
Greer, Burns & Crain, Ltd.
Ref. No.3531.65364
Sheet 22 of 35 (312) 360 00

F I G. 17A

FIG. 17A'



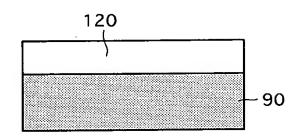
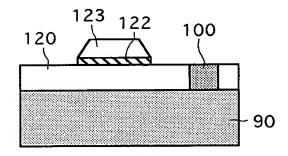


FIG. 17B

FIG. 17B'



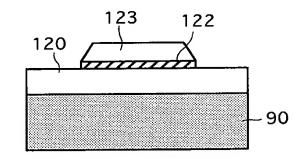
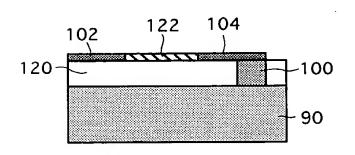
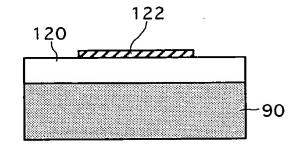


FIG. 17C

F I G. 17C'

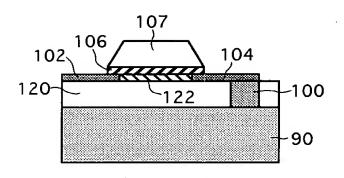




SPIN VALVE MAGNETORESISTIVE SENSOR. . . SEYAMA ET AL. Greer, Burns & Crain, Ltd. Ref. No.3531.65364
Sheet 23 of 35 (312) 360 00

FIG. 17D

FIG. 17D'



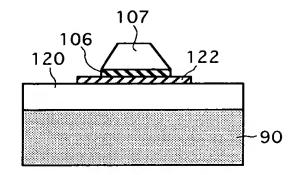
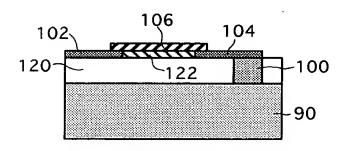


FIG. 17E

F | G. 17E'



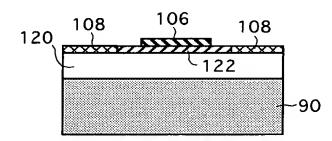
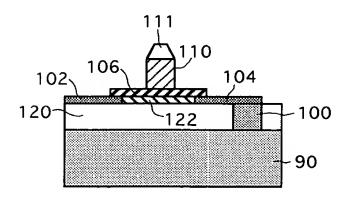
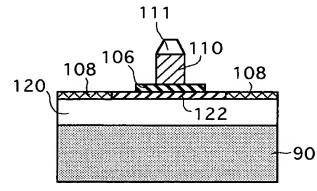


FIG. 17F

F I G. 17F'

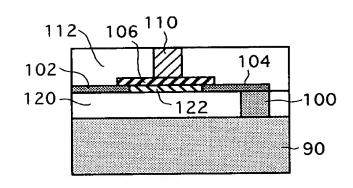


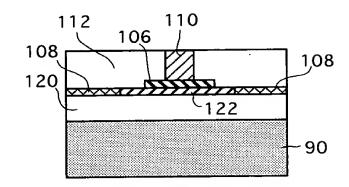


SPIN VALVE MAGNETORESISTIVE SENSOR. . . SEYAMA ET AL. Greer, Burns & Crain, Ltd. Ref. No.3531.65364 Sheet 24 of 35 (312) 360 0080

FIG. 17G

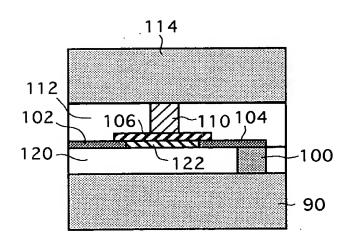
FIG. 17G'

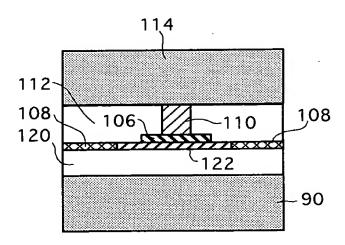




F I G. 17H

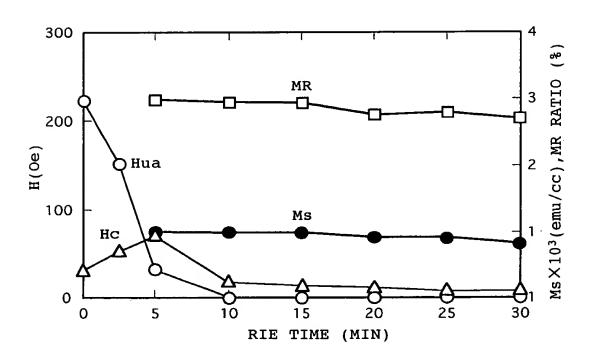
FIG. 17H'



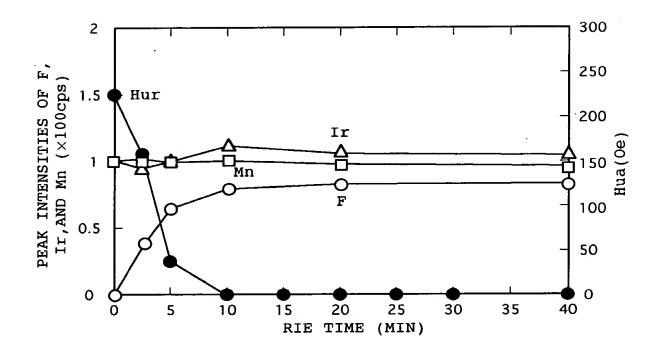


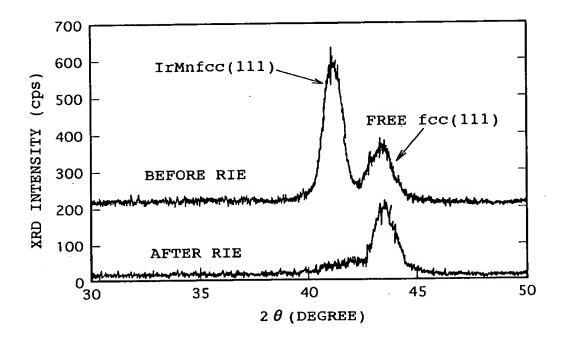


Ta 5	~144
IrMn 10	~142
NiFe 2	140
CoFeB 1.5	
Cu 3.5	~138
CoFeB 2.2	∼ 136
PdPtMn 25	∼ 134
NiFe 5	∼ 132
Ta 5	∼ 130
	•



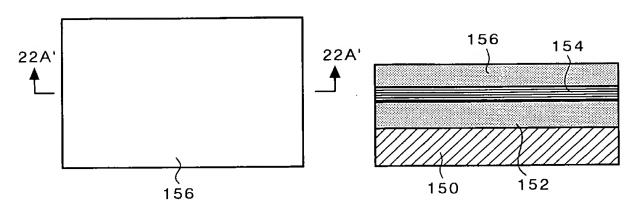
SPIN VALVE MAGNETORESISTIVE SENSOR. . . SEYAMA ET AL. Greer, Burns & Crain, Ltd. Ref. No.3531.65364
Sheet 27 of 35 (312) 360 00





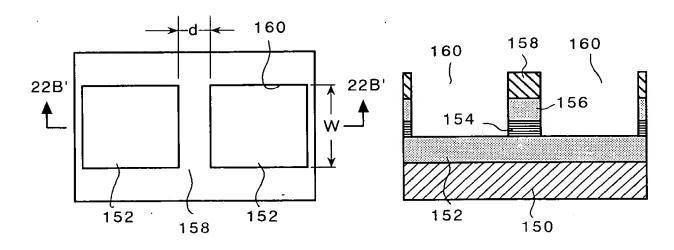
F I G. 22A

FIG. 22A'



F I G. 22B

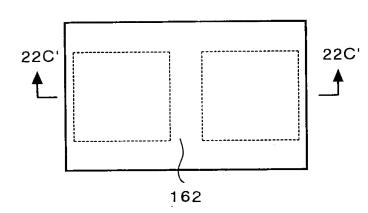
F I G. 22B'



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F I G. 22C



F I G. 22C'

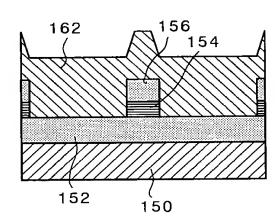
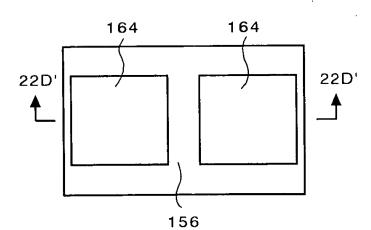
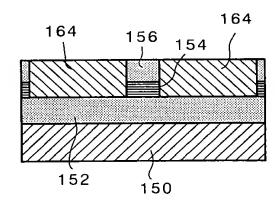


FIG. 22D



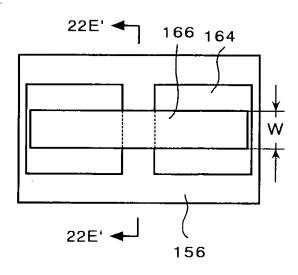
F I G. 22D'



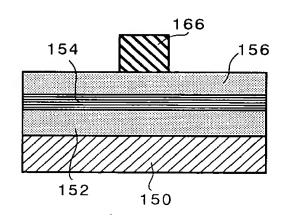
nga=nny_naen

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F I G. 22E

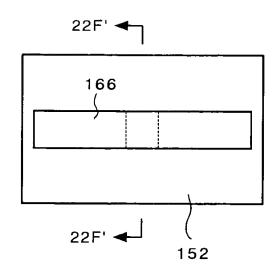


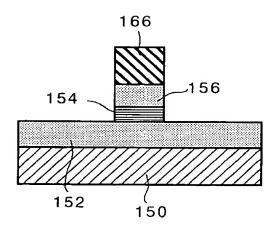
F I G. 22E'



F I G. 22F

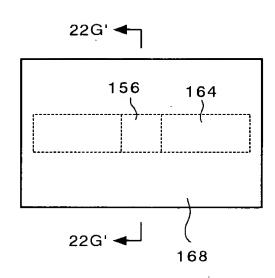
F I G. 22F'



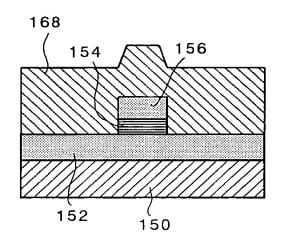


SPIN VALVE MAGNETORESISTIVE SENSOR. . . SEYAMA ET AL.
Greer, Burns & Crain, Ltd.
Ref. No.3531.65364
Sheet 32 of 35 (312) 360 0080

F I G. 22G

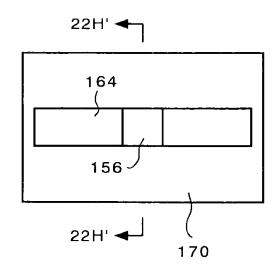


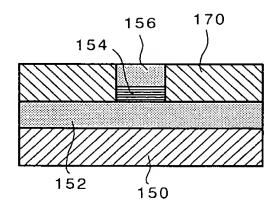
F I G. 22G'



F I G. 22H

F I G. 22H'

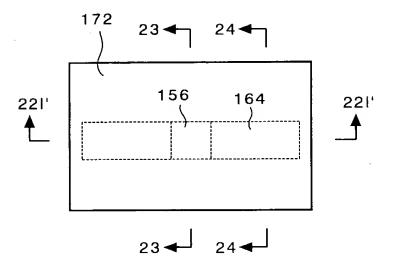




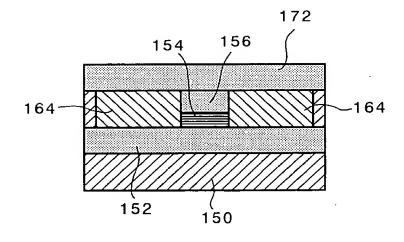
Sheet 33 of 35

(312) 360 0





F I G. 221'



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Sheet 34 of 35

(312) 360 00



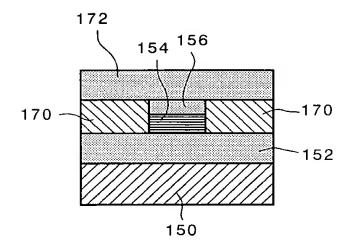
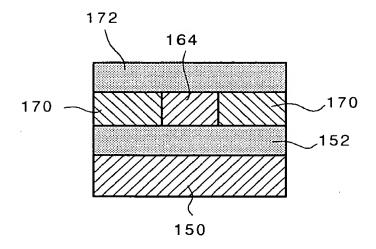


FIG. 24

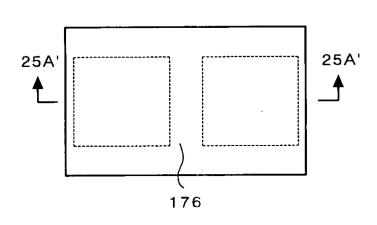


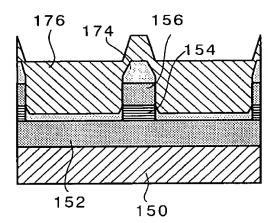
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SPIN VALVE MAGNETORESISTIVE SENSOR. . . SEYAMA ET AL. Greer, Burns & Crain, Ltd. Ref. No.3531.65364 Sheet 35 of 35 (312) 360 0

F I G. 25A

F I G. 25A'





F I G. 25B

F I G. 25B'

